Operating Instructions

S-VHS 625 VHS PAL Hi-Fi

Portable Video Cassette Recorder

Model AG-7450-B -E

BACK LIGHT
MEMORY RESET
AUDIO SELECT
AUDIO LEVEL
NORM CH1 Hi-Fi
NORM CH2 Hi-Fi
DOLBY SYSTEM
AG-7450
Portable Video Cassette Recorder
Panasonic

Panasonic

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT3217-2 **B**

DO NOT REMOVE PANEL COVER BY UNSCREWING.
To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

- This apparatus was produced to BS 800.
- Dieses Modell entspricht der EG-Vorschrift (für Funkstörungsschutz) 87/308/EWG.
- La Société PANASONIC-FRANCE, importateur du matériel MATSUSHITA JAPON déclare que cet appareil est conforme aux prescriptions de la directive 76/889/ C.E.E. modifiée par la directive 87/308/C.E.E.
- Dit model is onderworpen aan de EEG-richtijn (ter voorkoming van radiointerferentie) 87/308/EEG.
- Denne model opfylder EF direktiv 87/308/EF (for forebyggelse af radiointerferens).
- La Società PANASONIC ITALIA S.p.A., importatrice di questo prodotto, dichiara che questo apparecchio è conforme alle disosizioni della direttiva C.E.E./87/308 (D.M. 13. 4. 1989).
- Este modelo cumple con la norma EC (para interferencias de radio 87/308/EEC).

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

▒ is the safety information.

WARNING: Unauthorized recording of copyrighted television programmes, films, video tapes and other materials may infringe on the rights of copyright owners and be contrary to copyright laws.

- This unit is designed only for Standard Play (3-hour) mode.

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Features

Integrated with camera

The unit is connected to an optional video camera (WV-F70) to configure an integrated video/camera system.

The two units are connected by separate Y and C signals so that a high picture quality with crystal-clear colours is produced as a result.

Separate-type portable system

The unit is connected to an optional VTR adaptor (AG-S745) to configure a separate-type portable video system. Connection can also be made to a commercial video camera (with 14-pin connector).

Amorphous heads and high quality picture

Picture quality has been improved by the use of the S-VHS system and the amorphous heads. Resolution of over 400 lines and less noise are realized in the following conditions.

- FM carrier frequency: White peak; 7 MHz
  Sync tip; 5.4 MHz
- Installation of sub-emphasis circuit
- White clip level: 210%
- Use of S-VHS tape

Hi-Fi audio

Recordings with an excellent sound quality can be made using the 4-channel system composed of the normal audio (2-channel) facility with a Dolby* NR System and the Hi-Fi audio (2-channel) facility.

The input level of each channel can be adjusted independently on the display meter.

Time code generator/reader

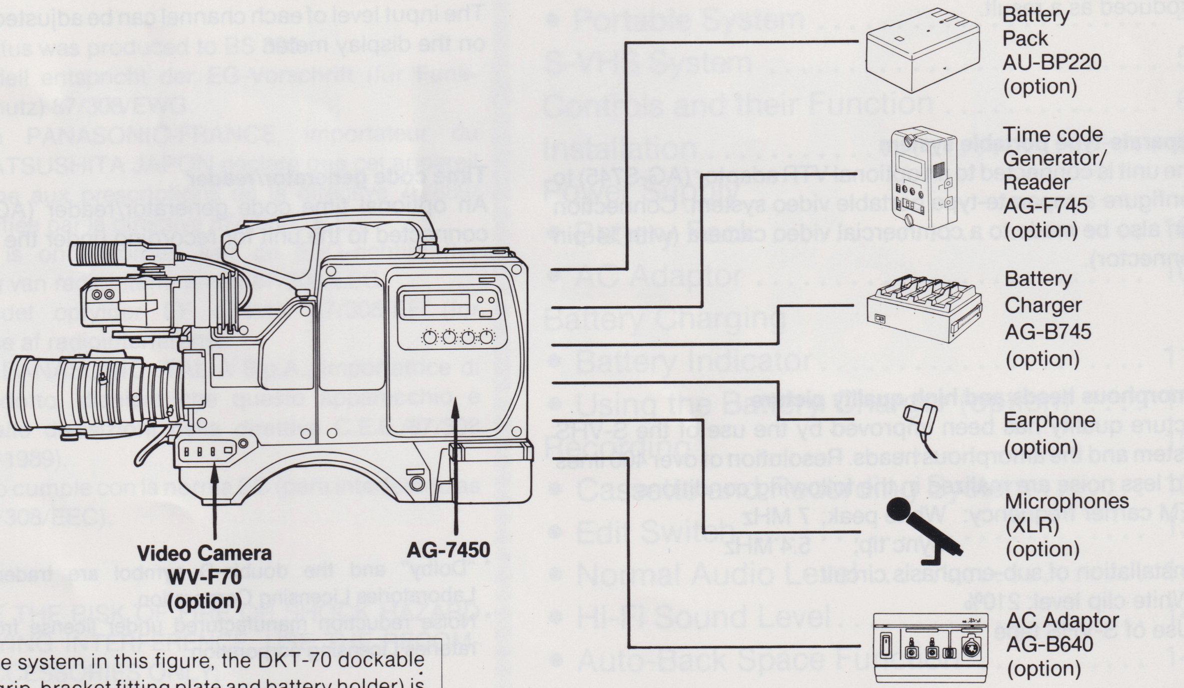
An optional time code generator/reader (AG-F745) can be connected to the unit for recording under the VITC and LTC.

* "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

* Noise reduction manufactured under license from Dolby Laboratories Licensing corporation.

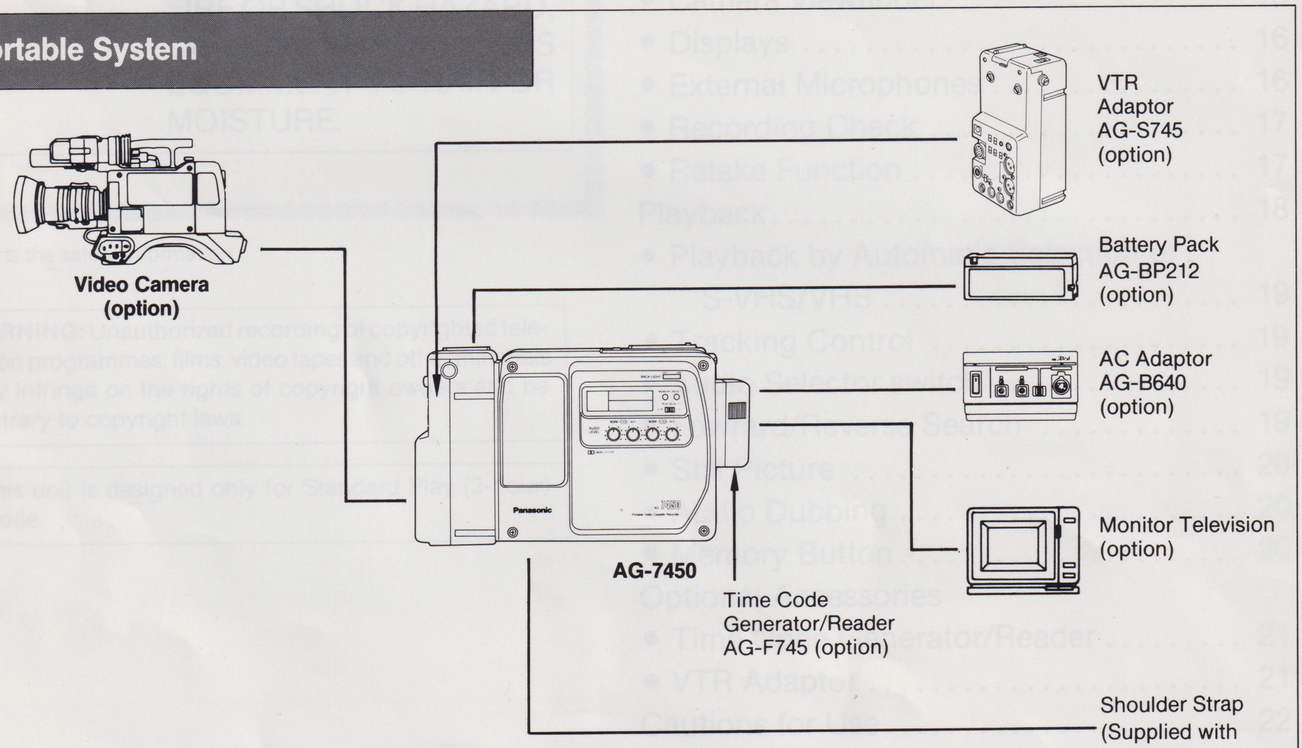
System Outline

Camera Recorder System


Battery Pack
AU-BP220
(option)
Time code Generator/ Reader
AG-F745
(option)
Battery Charger
AG-B745
(option)
Earphone
(option)
Microphones
(XLR)
(option)
AC Adaptor
AG-B640
(option)
Video Camera
WV-F70
(option)
AG-7450

To configure the system in this figure, the DKT-70 dockable kit (containing grip, bracket fitting plate and battery holder) is required in addition to the WV-F70 Video Camera and the AG-7450 Portable VTR.

Portable System

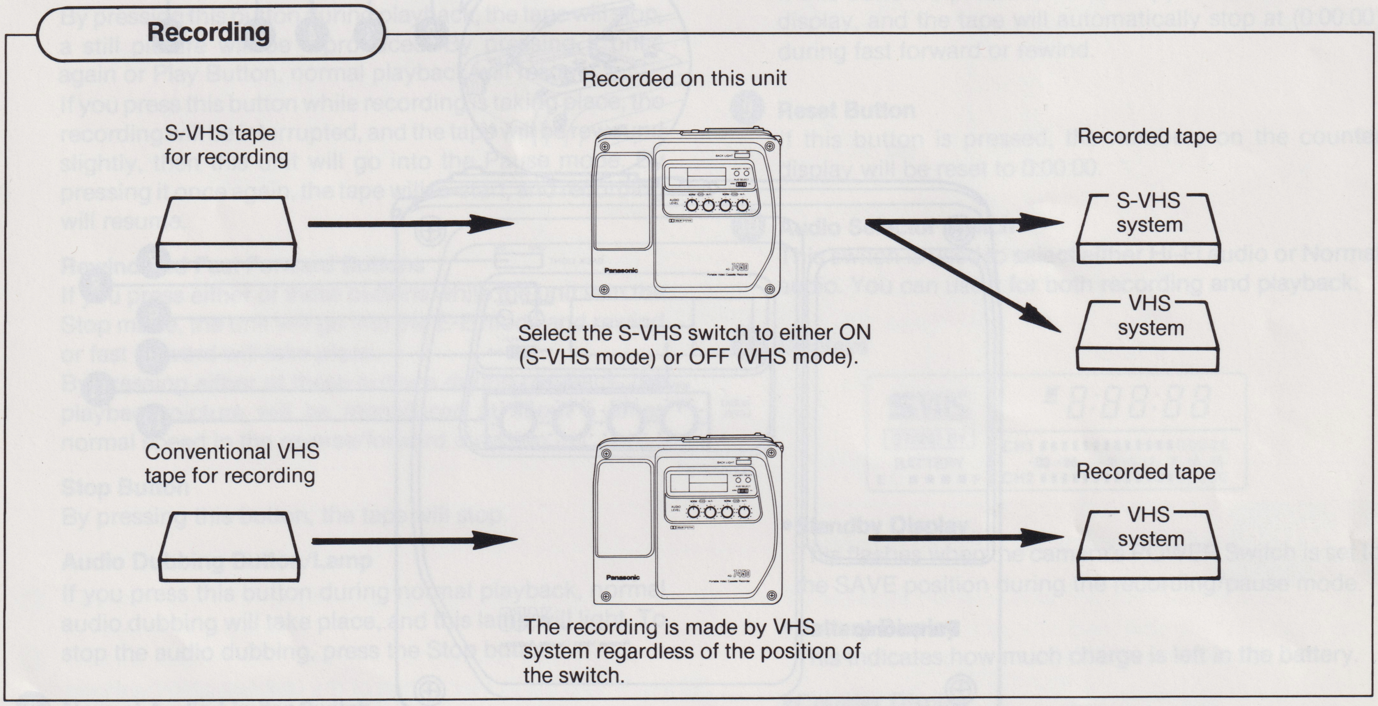

Video Camera
(option)
VTR
Adaptor
AG-S745
(option)
Battery Pack
AG-BP212
(option)
AC Adaptor
AG-B640
(option)
Monitor Television
(option)
AG-7450
Time Code
Generator/Reader
AG-F745 (option)
Shoulder Strap
(Supplied with
AG-S745)

S-VHS System

The S-VHS System has been designed to meet the critical demands of the Video Information Age. This system incorporates technologies that provide high resolution and excellent picture quality with the VHS Video system, which is solidly established the world over for industrial and home use. The combination of this system with the newly developed S-VHS video cassette has enabled epoch-making progress in picture clarity and detail. The system produces a horizontal resolution of no less than 400 lines. You cannot only make recordings and playbacks of high quality pictures by using a video cassette with the S-VHS mark but also enjoy recording and playback as before with a cassette bearing the normal VHS mark.

Interchangeability of Video Recorders and Cassettes

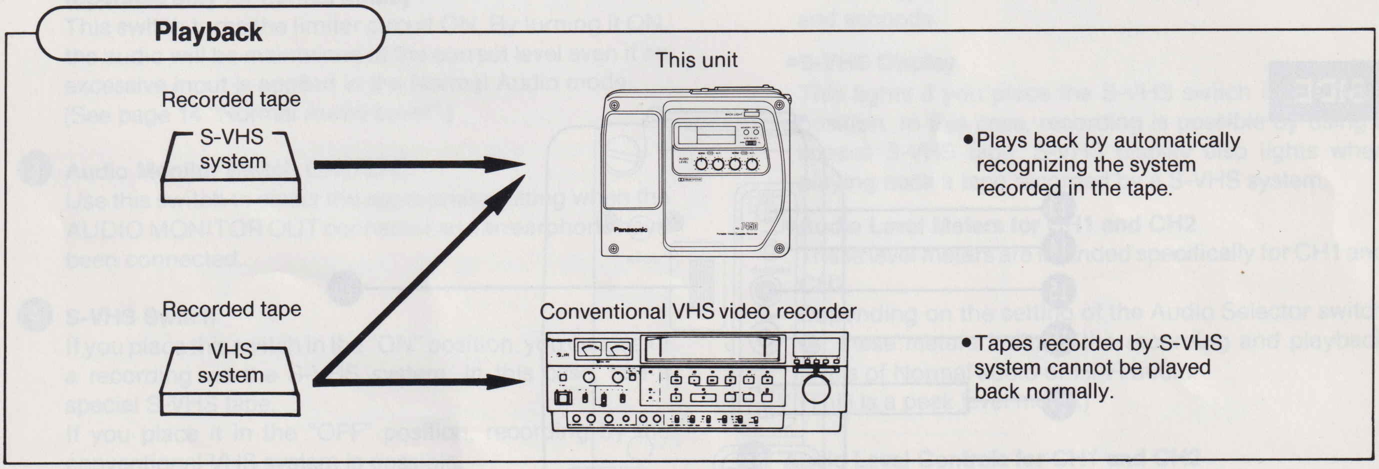
Recording


Recorded on this unit
S-VHS tape for recording
Recorded tape
S-VHS system
VHS system
Conventional VHS tape for recording
Recorded tape
VHS system

Select the S-VHS switch to either ON (S-VHS mode) or OFF (VHS mode).

The recording is made by VHS system regardless of the position of the switch.

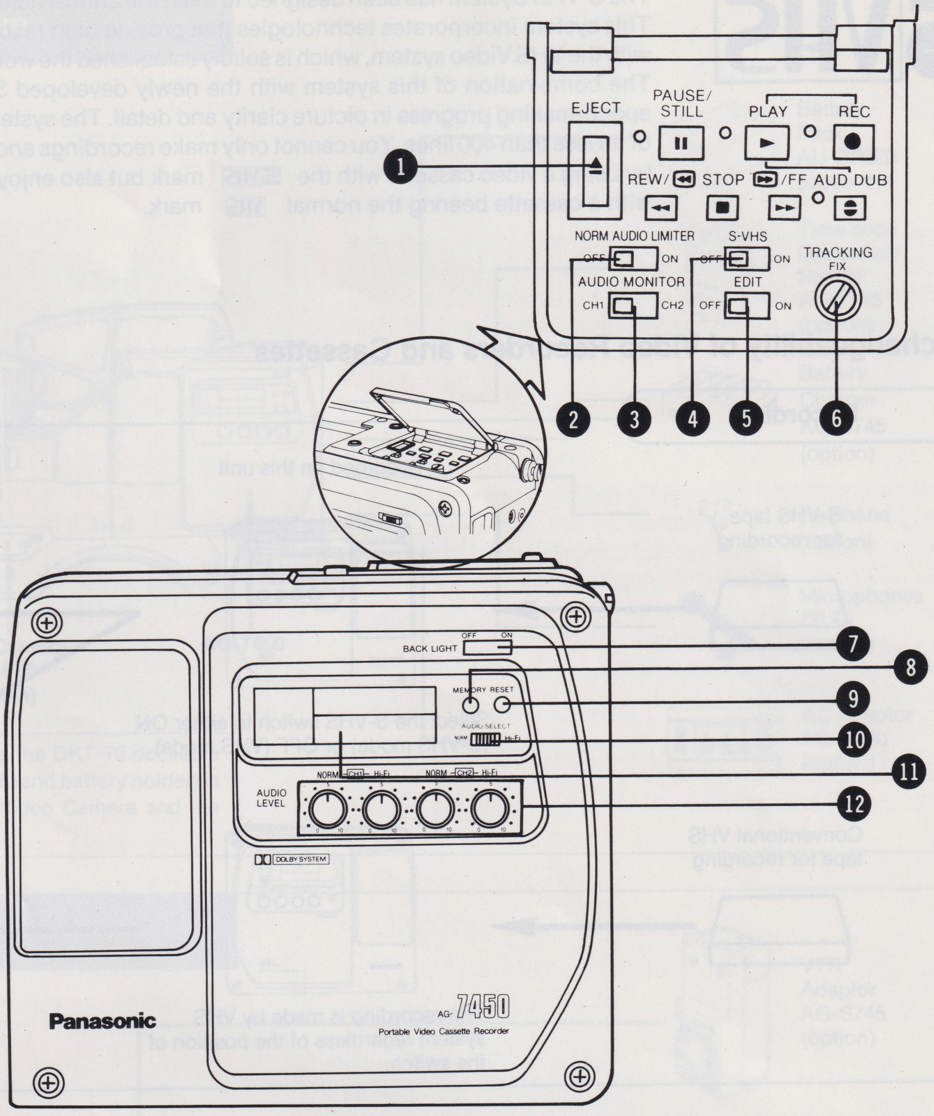
Playback


This unit
Recorded tape
S-VHS system
Recorded tape
VHS system
Conventional VHS video recorder

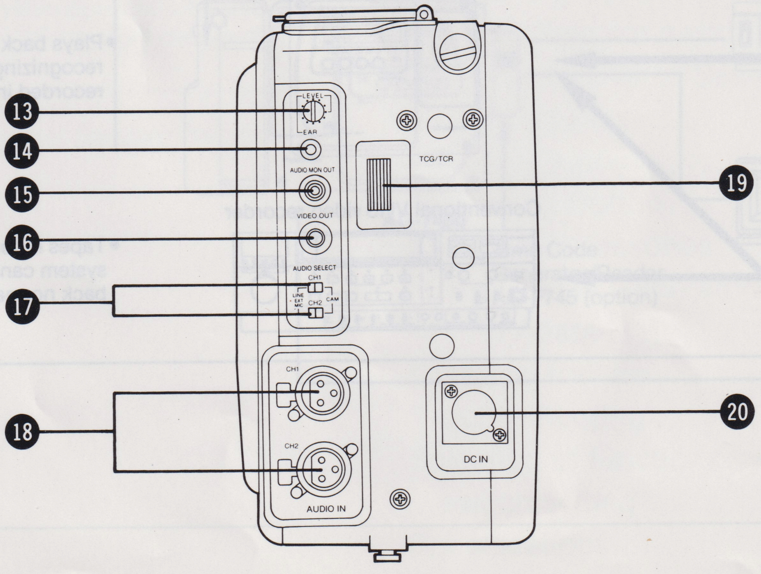
- Plays back by automatically recognizing the system recorded in the tape.
- Tapes recorded by S-VHS system cannot be played back normally.

Controls and their Functions

TOP


EJECT
PAUSE/ STILL
PLAY
REC
REW/
STOP
/FF
AUDIO DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON
1
2
3
4
5
6
BACK LIGHT
OFF
ON
MEMORY RESET
AUDIO SELECT
NORM
Hi-Fi
NORM
CH1
Hi-Fi
NORM
CH2
Hi-Fi
AUDIO LEVEL
5
0
10
DOLBY SYSTEM
Panasonic
AG-7450
Portable Video Cassette Recorder
7
8
9
10
11
12

SIDE


13
14
15
16
17
18
LEVEL
EAR
AUDIO MON OUT
VIDEO OUT
AUDIO SELECT
CH1
LINE
EXT
MIC
CH2
CAM
CH1
CH2
AUDIO IN
TCG/TCR
DC IN
19
20

❶ **Operation Buttons**

Eject Button

By pressing this button, the cassette holder will rise, permitting the cassette to be removed or inserted.

Play Button/Lamp

When this button is pressed, playback will start, and the lamp will light.

Record Button/Lamp

By pressing this button together with the Play button, recording will start, and the lamp will light.
To stop recording, press the Stop button.

Pause/Still Button/Lamp

By pressing this button during playback, the tape will stop, a still picture will be reproduced. By pressing it once again or Play Button, normal playback will resume.
If you press this button while recording is taking place, the recording will be interrupted, and the tape will be rewound slightly, then this unit will go into the Pause mode. By pressing it once again, the tape will re-start, and recording will resume.

Rewind and Fast Forward Buttons

If you press either of these buttons while the unit is in the Stop mode, the unit will go into the E-E mode and rewind or fast forward will take place.
By pressing either of these buttons during playback, the playback picture will be reproduced at about 5 times normal speed in the reverse/forward direction.

Stop Button

By pressing this button, the tape will stop.

Audio Dubbing Button/Lamp

If you press this button during normal playback, normal audio dubbing will take place, and this lamp will light. To stop the audio dubbing, press the Stop button.

❷ **Normal Audio Limiter Switch**
(operates only for normal audio)

This switch turns the limiter circuit ON. By turning it ON, the audio will be maintained at the correct level even if an excessive input is applied in the Normal Audio mode. (See page 14 "Normal Audio Level".)

❸ **Audio Monitor Switch CH1/CH2**

Use this switch to select the appropriate setting when the AUDIO MONITOR OUT connector and an earphone have been connected.

❹ **S-VHS Switch**

If you place this switch in the "ON" position, you can make a recording via the S-VHS system. In this case, use a special S-VHS tape.
If you place it in the "OFF" position, recording by the conventional VHS system is possible.
During playback, an automatic selecting circuit for both systems works, so there is no need to set this switch.

❺ **Edit ON/OFF Switch**

This switch turns ON and OFF the detail and Y NR/C NR circuits of the video recorder.

❻ **Tracking Control**

If noise occurs during playback, rotate this control to the left or right until a normal picture is obtained.

❼ **Back Light ON/OFF Switch**

This turns ON and OFF the light which illuminates the display.

❽ **Memory Button**

If this button is pressed, "M" will appear on the counter display, and the tape will automatically stop at (0:00:00) during fast forward or rewind.

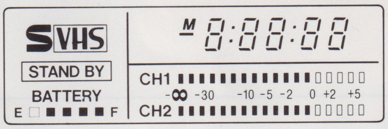
❾ **Reset Button**

If this button is pressed, the numbers on the counter display will be reset to 0:00:00.

❿ **Audio Selector Switch**

This switch is used to select either Hi-Fi audio or Normal audio. You can use it for both recording and playback.

⓫ **Displays**



- **Standby Display**
  This flashes when the camera's POWER Switch is set to the SAVE position during the recording/pause mode.
- **Battery Display**
  This indicates how much charge is left in the battery.
- **Counter Display**
  This is a tape counter. It gives a display in hours, minutes and seconds.
- **S-VHS Display**
  This lights if you place the S-VHS switch in the "ON" position. In this case, recording is possible by using a special S-VHS tape. S-VHS display also lights when playing back a tape recorded by a S-VHS system.
- **Audio Level Meters for CH1 and CH2**
  These level meters are intended specifically for CH1 and CH2.
  Depending on the setting of the Audio Selector switch ❿, these meters indicate the recording and playback levels of Normal audio or Hi-Fi audio.
  (This is a peak level meter.)

⓬ **Audio Level Controls for CH1 and CH2**

These level controls permit manual control of the recording level for Hi-Fi audio or Normal audio.

⑬ **Earphone Level Control**
This control is used to vary the level of the output from the Earphone jack.

⑭ **Earphone Jack**
This jack is used for connecting an earphone.

⑮ **Audio Monitor Output Jack**
For connection to audio amplifier, or audio input of a TV monitor. This allows monitoring of CH1 or CH2 as selected by the Audio Monitor Switch.

⑯ **Video Output Connector**
This connector is for composite video output.

⑰ **Audio Input Selector Switches**
Selection is as follows, depending on the type of audio input that is used.

LINE: (EXTMIC) When recording a signal by an external microphone.

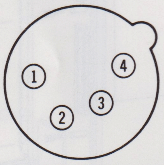
CAM: When recording a signal from the camera's built-in microphone.

Note:
The selection between LINE and External Microphone is available by the internal switch. For details, consult your authorized local dealer.

⑱ **Audio Input Connectors CH1 and CH2**
Used to connect the external microphone or line input signal to be recorded.
Even if only CH1 signals are supplied, sound can still be recorded onto CH2 using the internal switch.
The internal switch can also be set for 2-line input.
For details, consult your authorized local dealer.

⑲ **TCG Interface Connector**
This is used for connecting the optional time code generator/reader AG-F745.

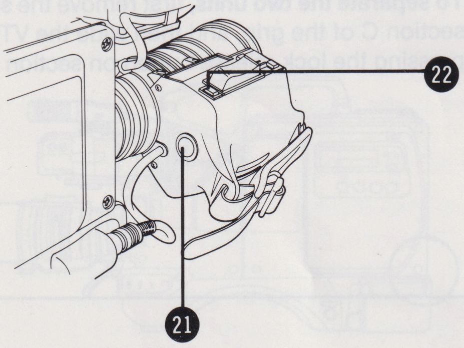
⑳ **External DC Input Connector**
For Connection to the AC Adaptor AG-B640 (option).

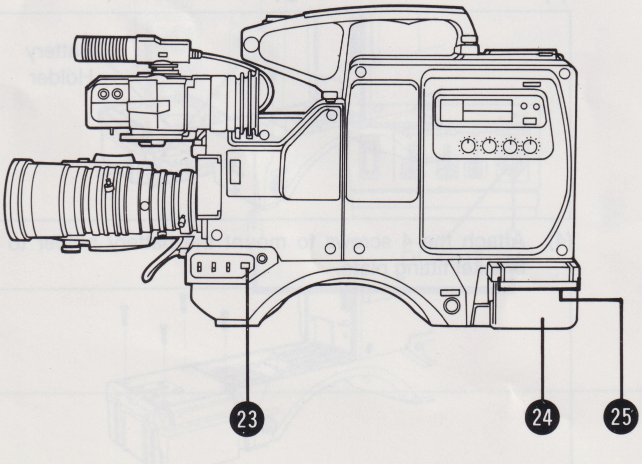


4-pin XLR connector

Pin	Contents
1	GND
2	—
3	—
4	+12V

Camera Side





㉑ **START/STOP Button**
This button provides continuity between frames. Every time it is pressed when the VTR is recording, the VTR will be repeatedly switched between the recording and recording/pause modes.

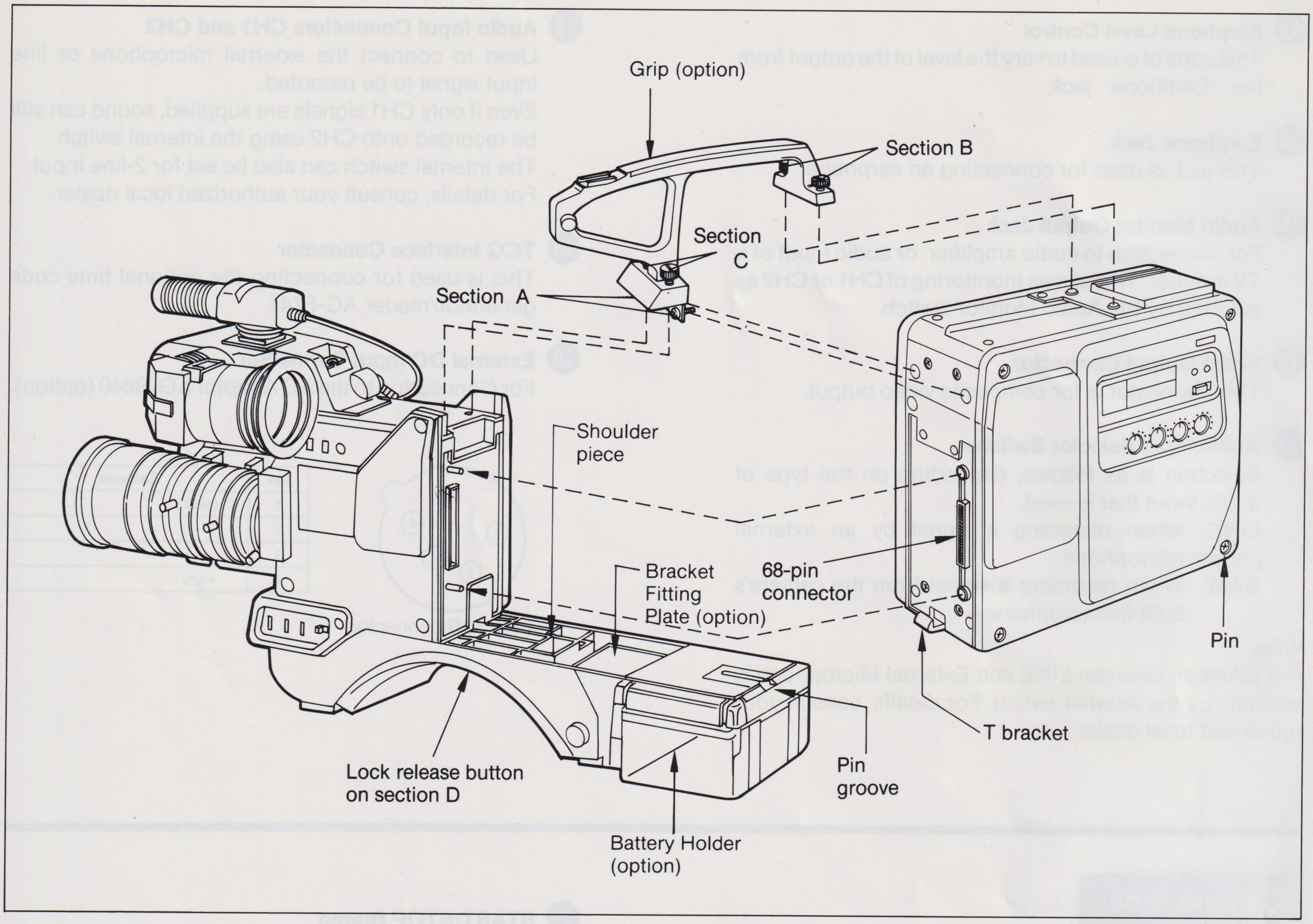
㉒ **RET/REC CHECK Button**
This button is for selecting the return video or recording check function.
When it is pressed during recording/pause, the recorded material will be played back and the recording/pause mode is established.

㉓ **Power Switch**
When this switch is turned ON, the power is suppplied to the unit.
When this switch is set to the SAVE position during the recording/pause mode, the camera's power is cut off and the VTR is set to the power-conserving mode.

㉔ **Battery Holder (option)**
This houses the AU-BP220 battery pack.

㉕ **Battery Eject Button**
Press this to remove the battery from the battery holder.

Installation


Grip (option)
Section B
Section C
Section A
Shoulder piece
Bracket Fitting Plate (option)
68-pin connector
Pin
T bracket
Pin groove
Lock release button on section D
Battery Holder (option)

❶ Secure section A of the grip to the unit using the screws (×2) provided.

❷ Secure section B of the grip to the unit using the screws (×2) provided.

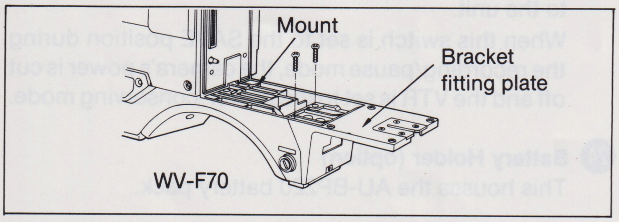
❸ Slide the unit onto the shoulder piece and connect the 68-pin connector. Make sure that the pin fits into the corresponding pin groove.

❹ Secure section C of the grip to the unit using the screws (×2) provided.

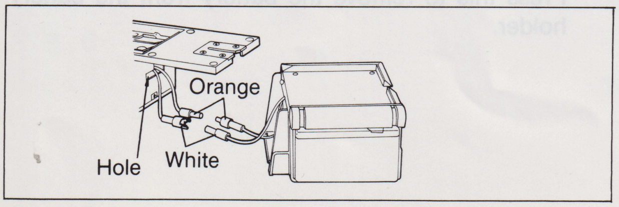
To separate the two units, first remove the screws (×2) in section C of the grip, and then slide the VTR back while pressing the lock release button on section D.

Battery holder mounting method

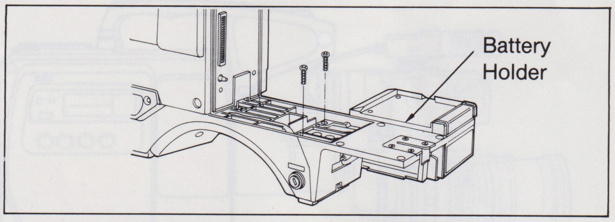
(1) Remove the 2-screws to separate the bracket fitting plate from the mount as shown.


Mount
Bracket fitting plate
WV-F70

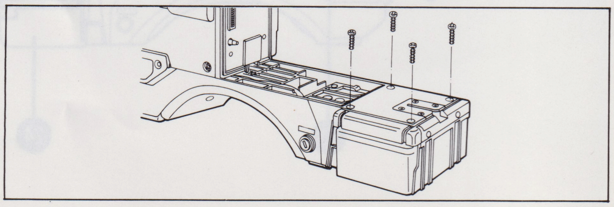
(2) Insert the lead wires from the hole in the bracket fitting plate, and connect the lead wires as shown.


Orange
Hole
White

(3) Attach the bracket fitting plate to the mount.

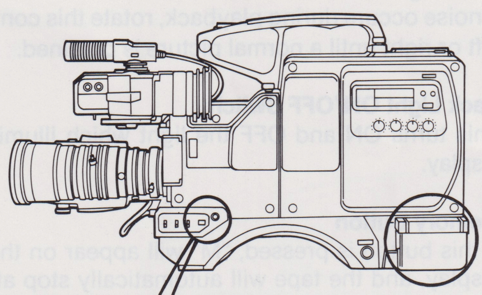

Battery Holder

(4) Attach the 4 screws to mount the battery holder to the bracket fitting plate.

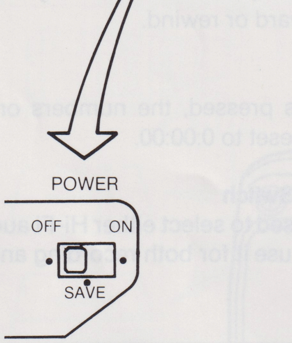


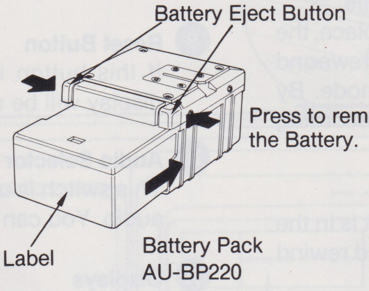
Power Supply

OUTDOOR Battery Pack AU-BP220 (option)

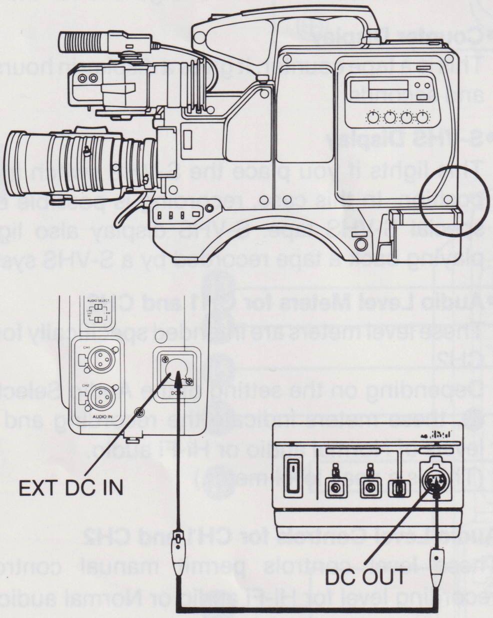


1. Verify that the Power switch is OFF.
2. Insert the battery as indicated by the arrow. (Push it in firmly until it locks in place.)
3. Turn the Power switch ON.
4. Before removing the battery, turn the Power switch OFF, then press the Battery Eject button. The battery will be released, enabling you to remove it.





INDOOR AC Adaptor AG-B640 (option)



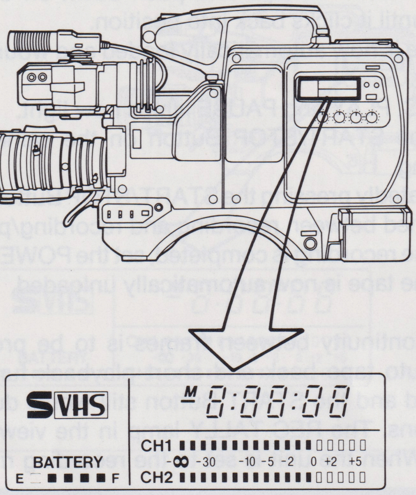
1. Verify that the Power switch of the unit and also the Power switch of the AC Adaptor are OFF.
2. Connect the power cord of the AC Adaptor to an AC power outlet.
3. Using the DC cable provided with the AC Adaptor, connect the DC Output connector on the AC Adaptor to the External DC Input connector of the unit.
4. Set the Mode Selector switch of the AC Adaptor to DC OUT.
5. Turn ON the AC Adaptor's Power switch.
6. Turn ON the unit's Power switch.

- For details, refer to the instruction manual of the AC Adaptor.

- Be sure that the power cannot be supplied to the unit while AC Adaptor is charging the Battery Pack.
- The AC Adaptor takes priority when the battery pack has been connected.
- The picture will be temporarily disturbed when the AC Adaptor is connected to the EXT DC IN connector while the unit is being operated using the battery pack. Make sure that the unit is set to the Pause mode first before turning the power of the AC Adaptor ON.

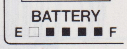
Battery Charging

Battery Indicator

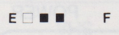


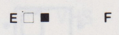
The state of battery capacity is indicated in the counter display.

- When the battery pack is fully charged, the display will be as shown in the drawing.

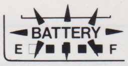


- When the battery pack runs down, the "■" indicators will gradually go out from the right.
  When all of the "■" indicators go out, the battery pack can only be used for several more minutes.
  In this case, either charge the battery or replace it with a charged battery.

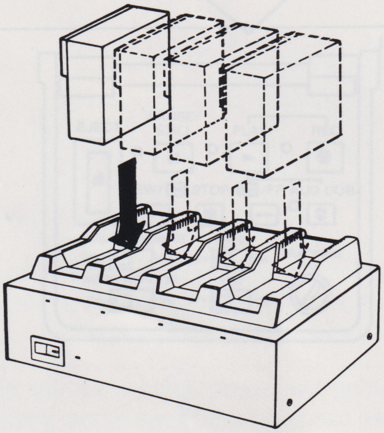




- When the "□" indicator goes out, the unit will be automatically turned OFF, and "BATTERY" indicator in the counter will flicker. Immediately set the power switch to OFF.



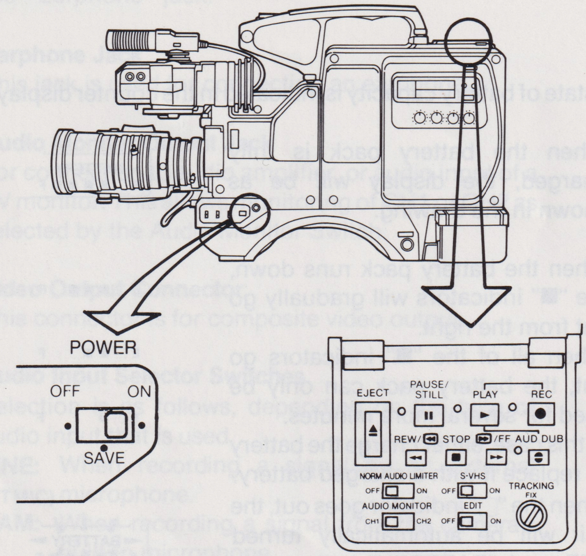
Using the Battery Charger AG-B745 (option)



❶ Connect the power cord of the Battery Charger to an AC Outlet.
❷ Connect the battery pack (4 pcs. max.)
❸ Set the Power Switch of the Battery Charger to ON.

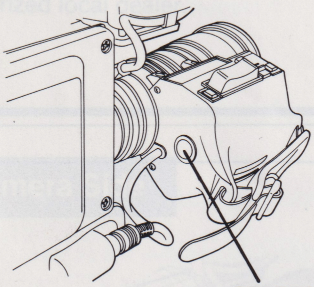
Automatic charge begins with the battery pack from CHARGE 1 to CHARGE 4 in order. When the lamp changes to the blinking mode, battery pack charge has been completed.

Recording

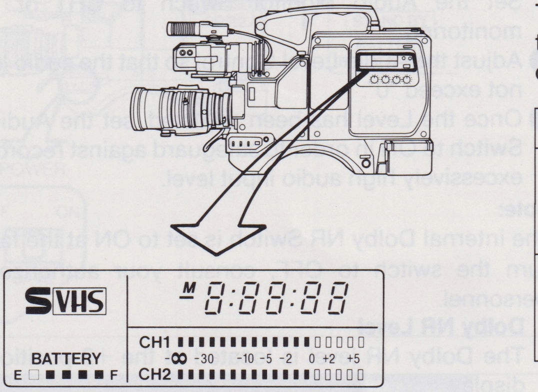

POWER
OFF
ON
SAVE
EJECT
PAUSE/STILL
PLAY
REC
REW/◀◀
STOP
▶▶/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

❶ Set the POWER Switch to ON.
❷ Press the EJECT Button to open the cassette holder.
❸ Load the cassette tape and push down on the cassette holder until it clicks back into position.
The tape is now automatically loaded and wound onto the cylinder.
The REC, PLAY and PAUSE lamps now light.
❹ Press the START/STOP Button on the camera to start recording.
By repeatedly pressing the START/STOP Button, the mode is switched between recording and recording/pause.
❺ When the recording is completed, set the POWER Switch to OFF. The tape is now automatically unloaded.

- When continuity between frames is to be provided, the unit's auto tape back and short playback functions are activated and the START Button still works during these operations. The REC TALLY lamp in the viewfinder now blinks. When the unit is set to the recording mode, it will light.
- To eject the cassette tape, first press the STOP Button and then the EJECT Button.
- When the RESET Button is pressed, the display and counter in the camera viewfinder will be reset to zero.


START/STOP
Button

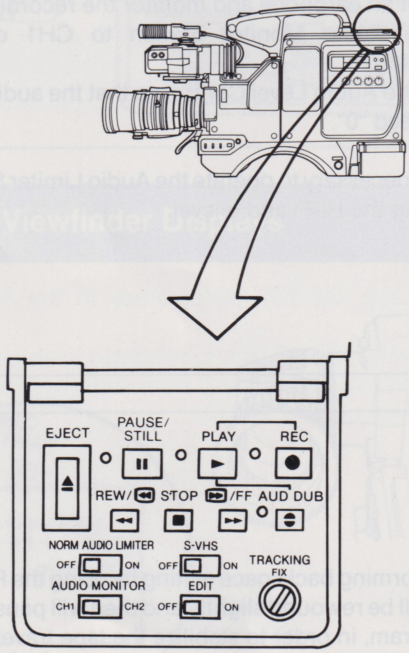
Cassette and Recording System


SVHS
M 8:88:88
CH1
BATTERY
E F
-∞ -30 -10 -5 -2 0 +2 +5
CH2

Two different recording systems S-VHS and VHS are used for this unit. Set the recording system according to the following chart:

Type of cassette	Setting of S-VHS switch	S-VHS display	Recording system
Special S-VHS cassette	OFF ☐ ON	Lights	S-VHS
	OFF ☐ ON	Extinguishes	VHS
VHS Cassette	OFF ☐ ON	Extinguishes	VHS
	OFF ☐ ON	Extinguishes	VHS

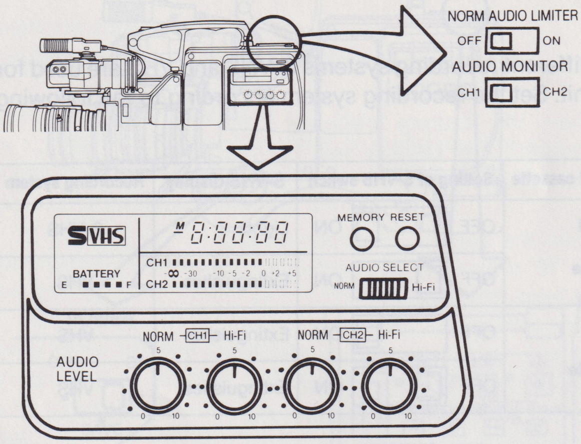
Edit Switch


EJECT
PAUSE/STILL
PLAY
REC
REW/◀◀
STOP
▶▶/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

- During VHS recording Edit Switch turns the detail circuit on/off, during S-VHS/VHS playback it turns luminance and chrominance noise canceller circuit on/off.
- If a camera provided with a detail circuit is connected for recording in the VHS mode, too much enhanced effect is applied to the recording. To refrain from that excess, set the Edit Switch to the ON position.
- Set Edit Switch to the OFF position to reduce noise level in the playback picture.

Mode	SW position	VHS Mode	S-VHS Mode
Recording	ON	Normal picture quality	—
	OFF	Details are emphasized.	—
Playback	ON	Luminance signal noise is not canceled (Y NR is OFF). Chroma C NR is OFF.	Same as the left side.
	OFF	Normal picture quality	Same as the left side.

Normal Audio Level


NORM AUDIO LIMITER
OFF
ON
AUDIO MONITOR
CH1
CH2
MEMORY RESET
S-VHS
BATTERY
E F
CH1
CH2
AUDIO SELECT
NORM
Hi-Fi
NORM
CH1
Hi-Fi
NORM
CH2
Hi-Fi
AUDIO LEVEL

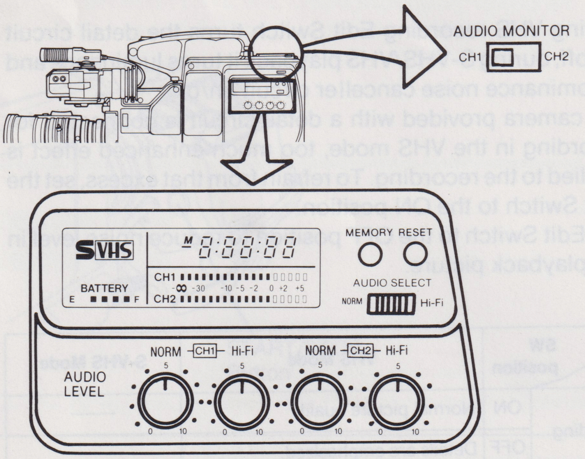
❶ Set the Audio Select Switch to NORM.
❷ Set the Normal Audio Limiter Switch to OFF.
❸ Connect an earphone and monitor the recording level. Set the Audio Monitor Switch to CH1 or CH2 for monitoring.
❹ Adjust the Audio Level Control so that the audio level does not exceed "0".
❺ Once the Level has been adjusted, set the Audio Limiter Switch to ON in order to safeguard against recording at an excessively high audio input level.

Note:

The internal Dolby NR Switch is set to ON at the factory. To turn the switch to OFF, consult your authorized service personnel.

- **Dolby NR Level**
  The Dolby NR level is located at the +2 position on the display.

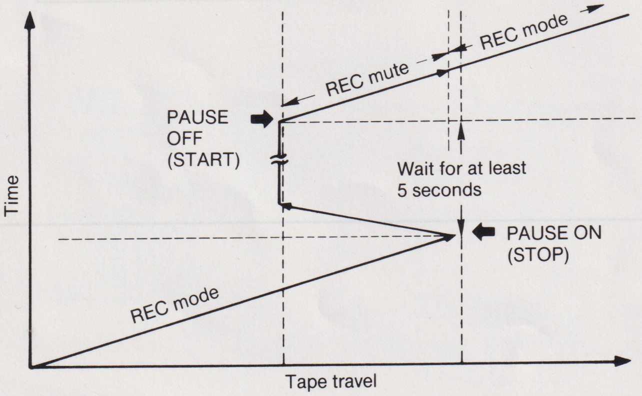
Hi-Fi Audio Level


AUDIO MONITOR
CH1
CH2
MEMORY RESET
S-VHS
BATTERY
E F
CH1
CH2
AUDIO SELECT
NORM
Hi-Fi
NORM
CH1
Hi-Fi
NORM
CH2
Hi-Fi
AUDIO LEVEL

❶ Set the Audio Select Switch to Hi-Fi.
❷ Connect an earphone and monitor the recording Level. Set the Audio Monitor Switch to CH1 or CH2 for monitoring.
❸ Adjust the Audio Level Control so that the audio level does not exceed "0".

- It is not necessary to operate the Audio Limiter Switch when adjusting the Hi-Fi audio level.

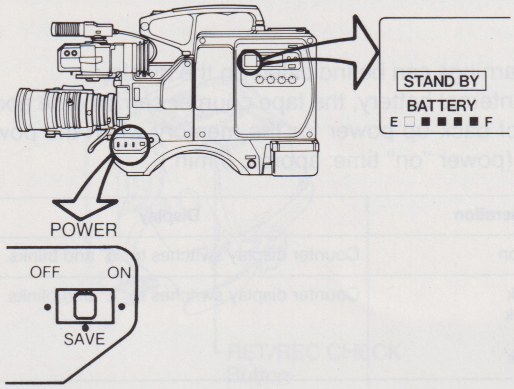
Auto-Back Space Function



When performing backspace editing by using the Pause mode, the tape will be rewound slightly and then will pause, as shown in the diagram, in order to stabilize the tape travel.

- When performing backspace editing, wait for at least 5 seconds before canceling the Pause mode. If you cancel the Pause mode within 5 seconds, clean backspace editing may not always take place.
- Note that if you perform backspace editing on a previously recorded portion of the tape, a slight degree of demagnetization may occur.

Standby Function


STAND BY
BATTERY
E
F
POWER
OFF
ON
SAVE

The standby function works to temporarily stop the recording operation. In this case, the power supplied from the battery pack is conserved.

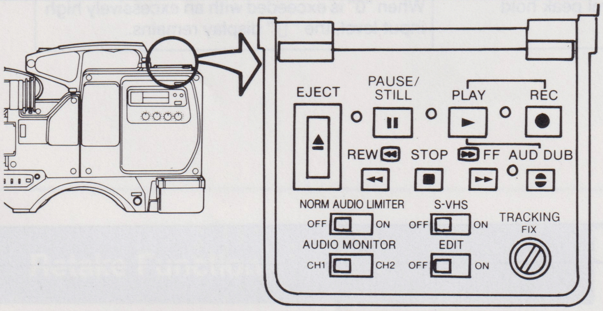
❶ Set the POWER Switch on the camera to the SAVE position.

❷ The STAND BY display on the unit blinks to indicate the operation. The tape, still wound around the cylinder, is now stopped. The display illumination is forcibly cut off.

❸ To resume recording, simply set the POWER Switch to ON.

- Be sure that the S-VHS display goes out during the STAND BY mode.

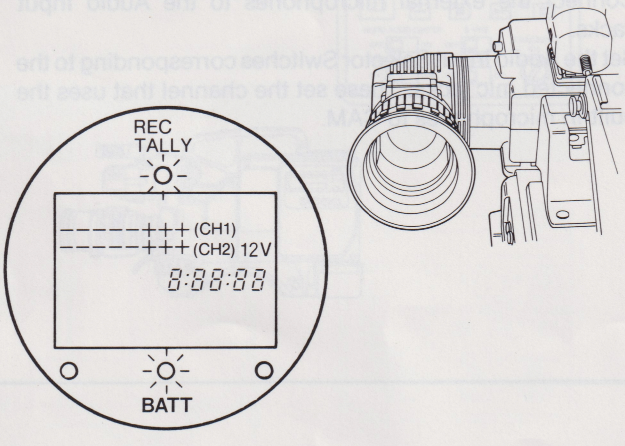
Rec/Pause Mode


EJECT
PAUSE/
STILL
PLAY
REC
REW
STOP
FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

Every time about 5 minutes elapse with the unit in the recording/pause mode, the tape will be moved backward by 1 frame as a safety protection measure (to prevent video head clogging).

When the pause mode has been established for about 30 minutes, the recording mode is released and the unit is automatically set to the stop mode.

Camera Viewfinder Displays


REC
TALLY
(CH1)
(CH2) 12V
8:88:88
BATT

The tape counter as well as the audio level and warning displays are provided in the viewfinder.

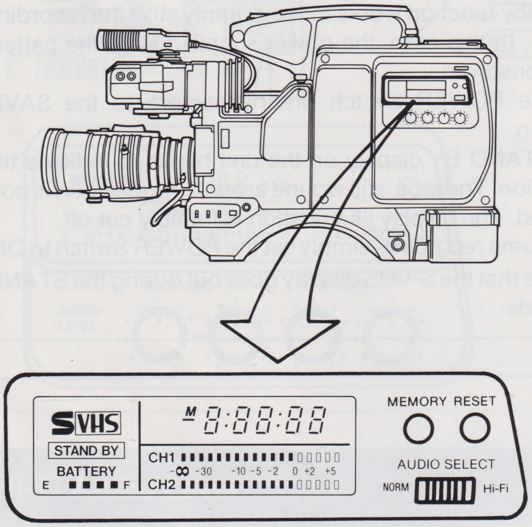
Inside the viewfinder

Display	Description
Now recording	"REC TALLY" lamp lights.
Audio level	"----" display Upper level for CH1 Lower level for CH2 "++" denotes an excessively high input level.
Battery voltage	Digital display.
Counter	Hr, min, sec
Low battery charge	"BATT" lamp blinks about 5 minutes before the battery runs down.

The camera operations are displayed in the viewfinder and so for further details, reference should be made to the Operating Instructions of the camera.

- The level meter or counter indication may differ from the counter display of the VTR. For details, refer to the camera's manual.

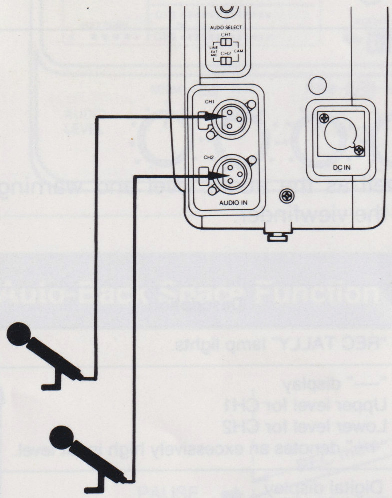
Displays


S-VHS
STAND BY
BATTERY
E F
M 0:00:00
CH1
-∞ -30 -10 -5 -2 0 +2 +5
CH2
MEMORY RESET
AUDIO SELECT
NORM
Hi-Fi

Various warnings can be indicated on the display. Using an internal battery, the tape counter can provide about 48 hours of back-up power for the memory when the power has failed (power "on" time: approx. 5 min.).

Operation	Display
Condensation	Counter display switches to "d" and blinks.
Capstan lock Cylinder lock Reel lock Loading lock	Counter display switches to "E" and blinks.
Voltage drops below 10.5V	"BATTERY" display blinks
Counter memory	Counter display "M" lights.
Counter reverse display	When "0" display is exceeded, "-" lights.
Audio level peak hold	When "0" is exceeded with an excessively high input level, the " ▯ " display remains.

External Microphones

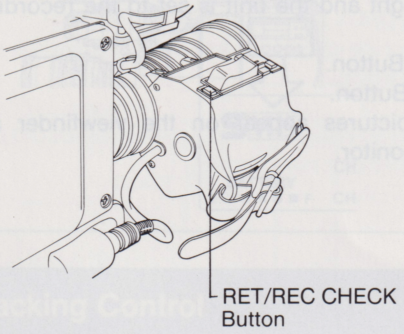

AUDIO SELECT
CH1
CH2
AUDIO IN
DC IN

The unit's bulit-in microphones or external microphones can be used.

❶ Connect the external microphones to the Audio Input Jacks.

❷ Set the Audio Input Selector Switches corresponding to the connected mic jacks. These set the channel that uses the built-in microphones to CAM.

Recording Check

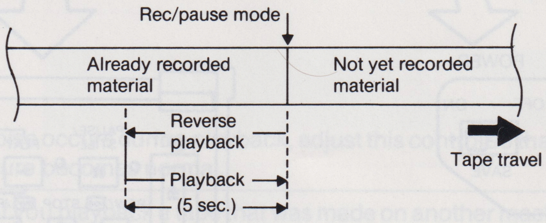

RET/REC CHECK Button

This unit has a recording check function for checking the quality of images while material is being recorded.

❶ Press the RET/REC Check Button when the unit has been placed in the recording/pause mode (the REC, PLAY and PAUSE lamps will light).

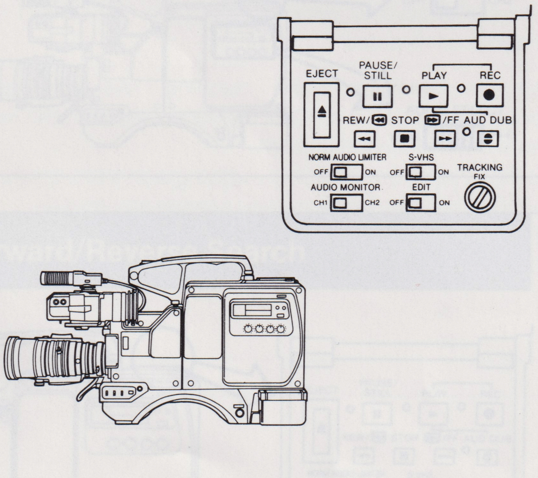
❷ The operations are shown in the figure below. It is possible to check the playback images for about 10 seconds in the viewfinder.

❸ After the recording check, the tape returns to the recording/pause mode.


Rec/pause mode
Already recorded material
Not yet recorded material
Reverse playback
Playback
(5 sec.)
Tape travel

In this case, the tape can be played back for both reverse playback and forward playback at the normal tape speed.

Retake Function


EJECT
PAUSE/ STILL
PLAY
REC
REW/◄◄
STOP
►►/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

During recording, the unit's retake function can be used to play back the images in the forward or reverse direction on the viewfinder or TV monitor screen.

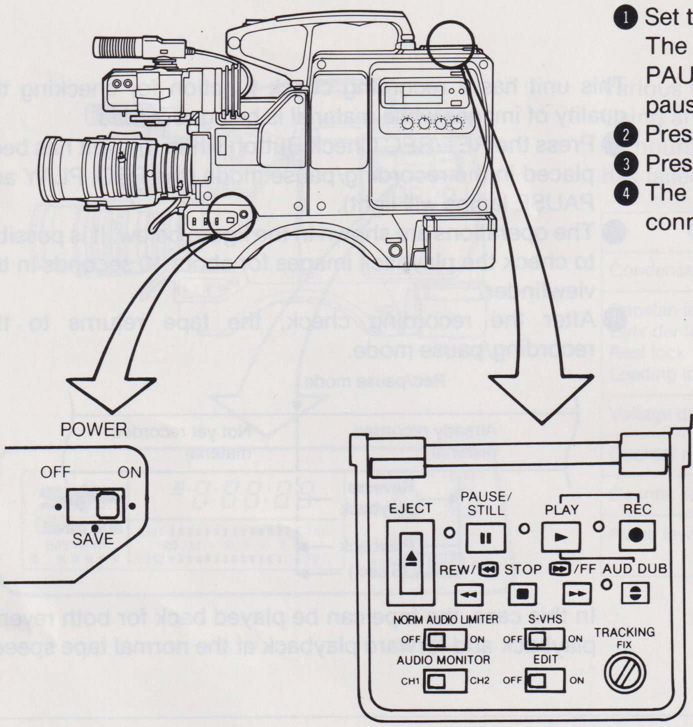
❶ Keep the REW or FF Button depressed in the recording/pause mode.

❷ The unit's REC and PAUSE lamps go out and then only the PLAY lamp lights. The mode is forcibly switched from recording to playback. The images of the forward or reverse playback now appear in the viewfinder or on the TV monitor.

❸ Release the REW or FF Button at the retake scene or cut position.

❹ The unit is now returned to the recording/pause mode.

Playback


POWER
OFF
ON
SAVE
EJECT
PAUSE/
STILL
PLAY
REC
REW/◀◀
STOP
▶▶/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

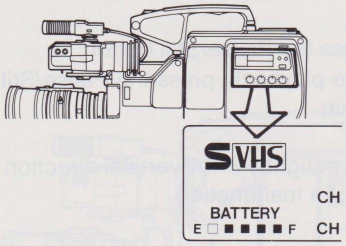
❶ Set the POWER Switch to ON.
The tape is automatically loaded, the REC, PLAY and PAUSE lamps light and the unit is set to the recording/pause mode.

❷ Press the STOP Button.

❸ Press the PLAY Button.

❹ The playback pictures appear on the viewfinder and connected TV monitor.

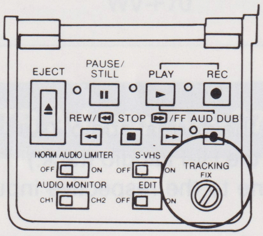
Playback by Automatic Selection of S-VHS/VHS


S VHS
CH
BATTERY
E F
CH

The playback circuit of this unit is capable of automatically recognizing the recording system of the cassette.

Recording system	**S-VHS display**
S-VHS	Lights
VHS	Extinguishes

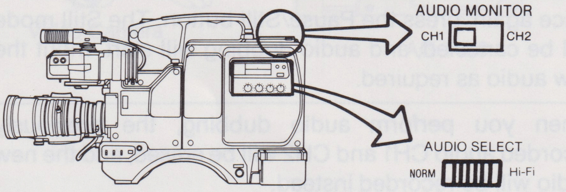
Tracking Control


EJECT
PAUSE/ STILL
PLAY
REC
REW/◀◀ STOP ▶▶/FF AUD DUB
NORM AUDIO LIMITER
OFF ON
S-VHS
OFF ON
TRACKING FIX
AUDIO MONITOR
CH1 CH2
EDIT
OFF ON

If noise occurs during playback, adjust this control so that the picture becomes normal.

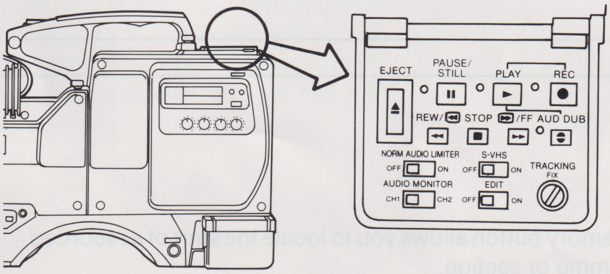
- If you playback a tape that was made on another machine, the noise may not be completely removed.

Audio Selector Switch


AUDIO MONITOR
CH1
CH2
AUDIO SELECT
NORM
Hi-Fi

You can select either Normal audio or Hi-Fi audio output using the Audio Selector Switch.
Selection can be made between CH1 and CH2 using the Audio Monitor Switch.

Forward/Reverse Search


EJECT
PAUSE/ STILL
PLAY
REC
REW/◀◀ STOP ▶▶/FF AUD DUB
NORM AUDIO LIMITER
S-VHS
OFF ON
OFF ON
TRACKING FIX
AUDIO MONITOR
EDIT
CH1 CH2
OFF ON

❶ When the REW button is kept depressed during playback, the tape is played back at about 5 times normal speed in the reverse direction.

❷ When the FF button is kept depressed during playback, the tape is played back at about 5 times normal speed in the forward direction.
Noise appears during the search mode as shown below.

- The picture may become as shown Fig. 3 below, or the upper portion of the picture may sometimes be distored; however this is not a malfunction.

Forward Search

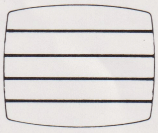


Fig. 1

Reverse Search

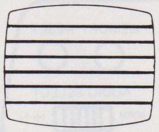


Fig. 2

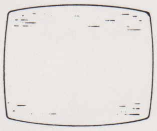
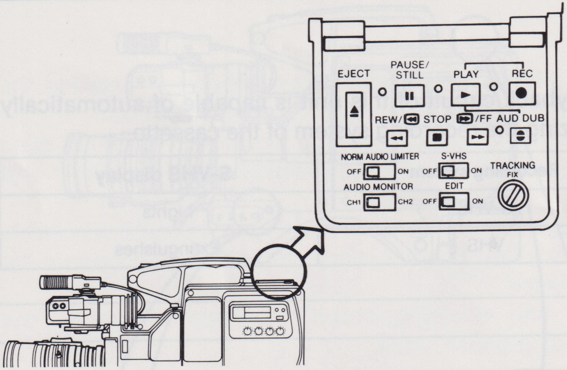


Fig. 3

- If the picture rolls vertically, adjust the vertical control on the television.
- Colour sometimes appears and disappears, but it is not a malfunction.

Still Picture

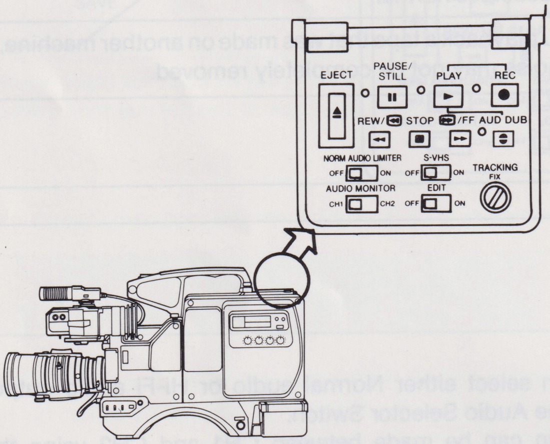

EJECT
PAUSE/
STILL
PLAY
REC
REW/
STOP
/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

❶ During playback, press the Pause/Still button.

❷ To cancel still picture playback, press the Pause/Still or Play button once again.

- Still pictures will shake slightly in the vertical direction but this is not indicative of a malfunction.

Audio Dubbing


EJECT
PAUSE/
STILL
PLAY
REC
REW/
STOP
/FF
AUD DUB
NORM AUDIO LIMITER
OFF
ON
S-VHS
OFF
ON
TRACKING
FIX
AUDIO MONITOR
CH1
CH2
EDIT
OFF
ON

Audio dubbing will take place on the normal audio. (Audio dubbing cannot be performed on the Hi-Fi audio track.)

❶ Connect the microphone or line to the respective input connector.

❷ Select the Audio Input Selector Switches to LINE or CAM according to the audio input source.

❸ Press the Play Button to play back the tape.

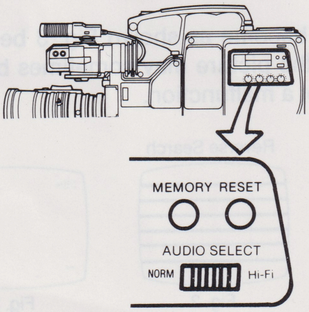
❹ Press the Pause/Still Button at the position on the tape where you want to dub the audio source.

❺ Press the Audio Dub Button.

❻ Once again, press the Pause/Still button. The Still mode will be canceled, and audio dubbing will start. Input the new audio as required.

- When you perform audio dubbing, the previously recorded audio CH1 and CH2 will be erased, and the new audio will be recorded instead.
- Note that if you perform audio dubbing with the unit near a television receiver, howling may sometimes occur.
- You cannot perform audio dubbing when there is no recording tab on the cassette.

Memory Button

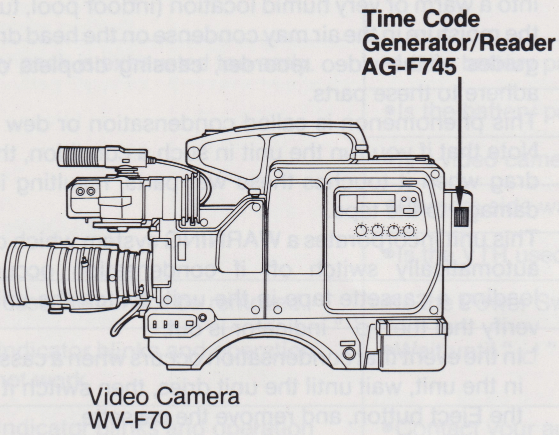

MEMORY RESET
AUDIO SELECT
NORM
Hi-Fi

The Memory button allows you to locate the start of a recorded programme or section.

Press the Reset button to reset the counter to “0:00:00” at the point where you wish to start playback. Then press the Memory button so that “M” indicator appears. When the tape is rewound of fast forwarded, the tape will automatically stop at “0:00:00”.

Optional Accessories

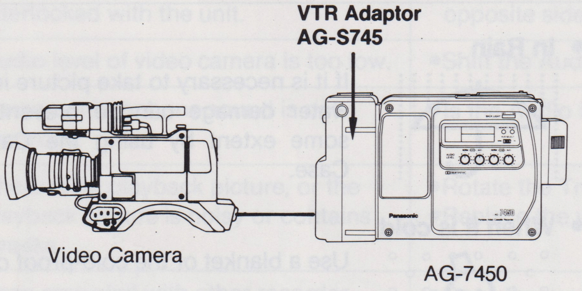
Time Code Generator/Reader AG-F745


Time Code
Generator/Reader
AG-F745
Video Camera
WV-F70

The optional Time Code Generator/Reader (AG-F745) can be attached to the unit.

The AG-F745 works with both the VITC and LTC systems. For details, refer to the Operating Instructions of the AG-F745.

VTR Adaptor AG-S745


VTR Adaptor
AG-S745
Video Camera
AG-7450

The optional VTR Adaptor (AG-S745) can be attached to the unit in order to configure a separate-type portable VTR. The VTR can be connected with a video camera featuring a 14-pin connector. For details, refer to the Operating Instructions of the AG-S745.

Cautions for Use

- Avoid places where there is high humidity or dust, which may cause damage to internal parts.
- The ventilation holes prevent overheating. Do not block or cover these holes. Especially avoid soft materials such as cloth or paper.
- Keep the unit away from extreme heat such as direct sunlight, heat radiators, or closed vehicles.
- Never bring a magnet or magnetized object near the unit because it will adversely affect the performance of the unit.
- It is dangerous, and may cause damage to the unit, to touch the internal parts of this unit. Do not attempt to disassemble the unit. There are no user serviceable parts inside.
- Keep unit away from other electrical appliances which can cause interference. Do not place unit directly above or below TV set.

  CAUTION:

  If any liquids should spill into the unit, serious damage could occur. In that case, please consult qualified service personnel.
- Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray any cleaner or wax directly on the unit or use forced air to remove dust.
- Use the unit in a horizontal or vertical position but do not place anything heavy on the VTR.

- If lightning occurs while recording outdoors, particularly in a wide, open field, stop recording immediately.

REFER ANY NEEDED SERVICING TO QUALIFIED SERVICE PERSONNEL.

Cleaning care for video heads

The video heads are the means by which the VTR places pictures on the tape during recording, and reads pictures from the tape during playback.

In the unlikely event that they become dirty enough to be clogged, no picture will be recorded or played back. This can easily be determined if, during playback of a known good tape, there is good sound, but no picture (picture is extremely snowy). If this is the case, have the VTR checked by qualified service personnel.

Precautions Concerning Condensation

If you abruptly bring the video recorder from a cold location into a warm or very humid location (indoor pool, tunnel, etc.), the moisture in the air may condense on the head drum or tape guides of the video recorder, causing droplets of water to adhere to these parts.

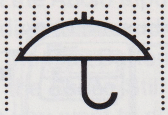
This phenomenon is called condensation or dew formation. Note that if you run the unit in such a condition, the tape will drag when it touches these wet parts, resulting in possible damage to the tape.

This unit incorporates a WARNING system which causes it to automatically switch off if condensation occurs. Before loading a cassette tape in the unit, switch the unit ON, and verify that the " d " indicator is out.

* In the event that condensation occurs when a cassette tape is in the unit, wait until the unit dries, then switch it ON, press the Eject button, and remove the cassette.

Recording under adverse conditions

- **In Rain**

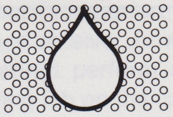


If it is necessary to take picture in rain, water damage can be prevented to some extent by using the Carrying Case.

- **When it is cold**

Use a blanket or the cold-proof case.

- **When condensation occurs (in an urgent need)**



Remove the cassette tape from the unit, and dry. When drying the unit with a dryer, turn off the Power switch and take care not to give damage to the unit. Set the Power switch to ON and make sure that the " d " indicator goes off. Check that the cylinder and tape are free of condensation. After that, insert the tape and start the recording.

Troubleshooting

Check the following points once again.

Symptoms	Check points	Ref. page
Battery pack is exhausted too early.	•Is the battery pack charged enough?	11
	•Is the battery pack too old?	11
	•Is a video camera consuming too much power is not connected?	——
	•Camera side was shifted to save mode during recording?	15
	•Is the VTR used in the extremely cold place?	22
Video cassette cannot be removed.	•Is the Power Switch ON.	
" d " Indicator blinks and operation does not work.	•Wait until " d " indicator disappears with power turned ON.	16
" E " Indicator blinks and operation does not work.	•Contact your authorized local dealer.	16
Power is not applied to the unit from AC Adaptor AG-B640.	•Mode Select switch on the AC Adaptor is shifted to "DC OUT"?	10
REC tally lamp of video camera is not interlocked with the unit.	•Shift the VTR Compatibility switch on camera trigger side to the opposite side.	
Audio level of video camera is too low.	•Shift the Audio Level Select switch on camera side to "–20 dB".	
Camera microphone sound is not recorded.	•Is the Audio Input Selector switch set to "CAM"?	16
There is no playback picture, or the playback picture is noisy or contains streaks.	•Rotate the Tracking Control slowly in either direction. •Replace the video head(s) if worn down.	19
Tape recorded with other recorder cannot be played back in stereo.	•Does the recorder that was used have stereo function?	——
Tape recorded with other recorder cannot be played back in Hi-Fi audio.	•Was Hi-Fi audio recorded on the tape?	
Tape stops during fast forward or rewind.	•Is the " ***M*** " mark on the counter displayed? •Press the Memory Button until the " ***M*** " mark disappears.	20

Refer servicing to qualified service personnel.

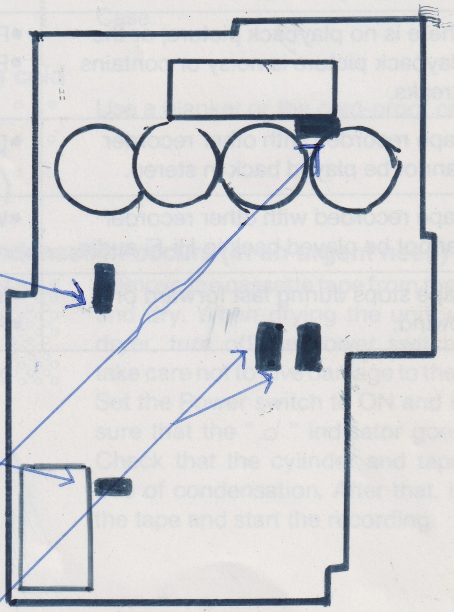
Selection of functions by internal switch settings

Depending on the requirements of the user, the following functions can be selected by setting the internal switches.
For further details, consult with authorized service personnel.

Internal Switch (Printed Circuit Board: Switch)	**Function**	**Setting when unit is shipped**
Colour framing switch (System Control Board: SW1)	ON: Colour framing alignment OFF: No colour framing alignment	~~ON~~ OFF
Forced Colour Selector Switch (Video Board: SW1)	COLOUR: Forced colour mode AUTO: Mode with automatic colour/black-and-white identification* AUTO: Black-and white mode	COLOUR
Dolby NR Switch (Audio Board: SW4001)	ON: Dolby NR switch ON OFF: Dolby NR switch OFF	~~ON~~ OFF
Audio Input Selector Switch (Audio Board: SW4301 for CH1 SW4302 for CH2)	LINE: When external line input is used MIC: When external microphone is used	MIC CHANNEL 2 LINE
CH2 REC Selector Switch (Audio Board: SW4002)	STEREO: CH1 and CH2 stereo recording MONO: CH1 input signal recorded on CH1 and CH2	STEREO
Hi-Fi AUDIO Recording Selector Switch (Audio Board: SW4501)	ON: No inhibiting of Hi-Fi AUDIO recording OFF: Inhibiting of Hi-Fi AUDIO recording	ON

* In the AUTO mode, colour may disappear in a moment when performing backspace editing with colour signals.

INTERNAL SWITCH	FUNCTION	SETTING
FORCED COLOR SELECTOR	COLOUR – FORCED COLOR AUTO – MODE WITH AUTOMATIC COLOR/B+W IDENTIFICATION B/W – BLACK + WHITE MODE	COLOR
DOLBY NR SWITCH	ON – DOLBY NR SWITCH ON OFF – DOLBY NR SWITCH OFF	~~ON~~ OFF
HI FI AUDIO RECORDING SELECTOR SWITCH	ON – NO INHIBITING OF HI FI AUDIO RECORDING OFF – INHIBITING OF HI FI AUDIO RECORDING	ON ON
CH2 REC SELECTOR SWITCH	STEREO – CH1 + CH2 STEREO RECORDING MONO – CH1 INPUT SIGNAL RECORDED ON CH1 + CH2	STEREO
AUDIO INPUT SELECTOR SWITCH	LINE – WHEN EXTERNAL LINE INPUT IS USED MIC – WHEN EXTERNAL MICROPHONE IS USED	MIC
COLOUR FRAMING SWITCH	ON – COLOUR FRAMING ALIGNMENT OFF – NO COLOUR FRAMING ALIGNMENT	~~ON~~ OFF



Specifications

General

Power Supply: DC 12V
Power Consumption: Approx. 16W (35W with camera)

Video Recording System: 2 rotary heads, helical scanning system
Luminance: FM azimuth recording
Colour signal: converted subcarrier phase shift recording
Tape Format: VHS/S-VHS tape
Tape Speed: 23.39 mm/s
Recording/Playback Time: 120 min. with NV-E120 tape
FF/REW Time: Approx. 4.5 min. (with NV-E120 tape)
Standard Battery Pack: AU-BP220 (option)
Standard Battery Charger: AG-B745 (option)
Standard AC Adaptor: AG-B640 (option)
Operating Temperature: 0° C~40° C
Operating Humidity: 35%~80%
Weight: Approx. 3.4 kg
Dimensions: 230 (W) × 213 (H) × 127 (D) mm

Video

Television System: CCIR Standard (625 lines, 50 fields)
PAL colour signal
Input: VIDEO (68-pin): 1.0 Vp-p, 1 kΩ
Output: VIDEO (BNC): 1.0 Vp-p, 75Ω
Signal-to-Noise Ratio: VHS: 45 dB (colour and B/W/TRAP ON)
Horizontal Resolution: S-VHS: 400 lines (colour and B/W)*
VHS: 250 lines (colour and B/W)

*The data is measured at the S-VIDEO OUT connector on the AG-S745 side.

Audio

Input: AUDIO (XLR): −6 dBs, 600Ω, balanced
MIC (XLR): −60 dBs, 600Ω, balanced
Output: EARPHONE (Mini Jack): −50 dBv~−26 dBv (variable), 8Ω unbalanced
AUDIO MONITOR (Phono): −8 dBv, 600Ω, unbalanced
Channel: 4-channels: Normal; 2 channels
Hi-Fi; 2 channels
Frequency Response: 50 Hz~10 kHz (Normal Audio)
20 Hz~20 kHz (Hi-Fi)
Dynamic Range: 80 dB (Hi-Fi)
Signal-to-Noise Ratio: 50 dB (Normal Audio/Dolby NR ON)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

- **68-pin Connector**

No.	Signal	Signal	No.
1	EXT 12V	EXT 12V	35
2	MIC Lch (1ch)	MIC Rch (2ch)	36
3	EXT 12V	MIC GND	37
4	P.B. AUDIO Lch	P.B. AUDIO Rch	38
5	P.B. AUDIO Lch GND	P.B. AUDIO Rch GND	39
6	POWER SAVE	VTR START/STOP	40
7	SWITCHED 12V	REC TALLY	41
8	S-VHS Y	S-VHS C	42
9	S-VHS Y GND	S-VHS C GND	43
10	COUNTER RESET	COLOUR	44
11		REC CHECK	45
12	RET. Y	RET. C	46
13	RET. Y GND	RET. C GND	47
14			48
15		TAPE REVERSE	49
16			50
17			51
18			52
19	VS	FLM	53
20	BATT WARNING	VTR WARNING	54
21	CTL PULSE	SERIAL DATA	55
22	COMPONENT	SERIAL CLOCK	56
23	UNSWITCHED 12V		57
24	C. SYNC		58
25	UNSWITCHED 12V		59
26			60
27		AUDIO MONITOR	61
28		AUDIO MONITOR GND	62
29			63
30			64
31	EXT GND	EXT GND	65
32			66
33	EXT GND	EXT GND	67
34			68

*1 Vrms=0 dBv
*0.775 Vrms=0 dBs

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